RECEIVED

JAN 1 7 2002

1600

TECH CENTER 1600/2900

DATE: 01/07/2002 TIME: 12:38:30

Input Set : A:\09-512810 Seq Listing.txt
Output Set: N:\CRF3\01072002\1512810.raw

PATENT APPLICATION: US/09/512,810

RAW SEQUENCE LISTING

```
ENTERED
 3 <110> APPLICANT: Branstrom, Arthur A.
         Sizemore, Donata R.
 4
 5
         Sadoff, Jerald C.
 7 <120> TITLE OF INVENTION: Bacterial Delivery System
 9 <130> FILE REFERENCE: 182.0001
11 <140> CURRENT APPLICATION NUMBER: 09/512,810
12 <141> CURRENT FILING DATE: 2000-02-25
14 <150> PRIOR APPLICATION NUMBER: US 08/711,961
15 <151> PRIOR FILING DATE: 1996-09-06
17 <150> PRIOR APPLICATION NUMBER: US 60/018,035
18 <151> PRIOR FILING DATE: 1996-05-21
20 <160> NUMBER OF SEO ID NOS: 8
22 <170> SOFTWARE: PatentIn version 3.1
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 1674
26 <212> TYPE: DNA
27 <213> ORGANISM: Shigella sp.
29 <400> SEQUENCE: 1
                                                                          60
30 tecataatea ggateaataa aactgetgea gaaatgattt eatteataae teaaatteee
32 tgataattgc cgcggacttt ctgcgtgcta acaaagcagg ataagtcgca ttactcatgg
                                                                         120
34 cttcgctatc attgattaat ttcacttgcg actttggctg ctttttgtat ggtgaaagat
                                                                         180
36 gtgccaagag gagaccggca catttataca gcacacatct ttgcaggaaa aaaacgctta
                                                                         240
38 tgaaaaatgt tggttttatc ggctggcgcg gtatggtcgg ctccgttctc atgcaacgca
                                                                         300
40 tggttgaaga gegegaette gaegeeatte geeetgtett etttttetae tteteagett
                                                                         360
42 ggccaggctg cgccgtcttt tggcggaacc actggcacac tcaggatgcc tttgatctgg
                                                                         420
44 aggcgctaaa ggccctcgat atcattgtga cctgtcaggg cggcgattat accaacgaaa
                                                                         480
46 totatocaaa gottogtgaa agoggatggo aaggttactg gattgacgca goatogtoto
                                                                         540
48 tgcgcatgaa agatgacgcc atcatcattc ttgaccccgt caatcaggac gtcattaccg
                                                                         600
50 acggattaaa taatggcatc aggacttttg ttggcggtaa ctgtaccgta agcctgatgt
                                                                         660
52 tgatgtcgtt gggtggttta ttcgccaatg atcttgttga ttgggtgtcc gttgcaacct
                                                                         720
                                                                         780
54 accaggeege tteeggeggt ggtgegegae atatgegtga gttattaace cagatgggee
56 atctgtatgg ccatgtggca gatgaactcg cgaccccqtc ctctgctatt ctcgatatcg
                                                                         840
58 aacqcaaaqt cacaacctta acccqtaqcq qtqaqctqcc qqtqqataac tttqqcqtqc
                                                                         900
60 cgctggcggg tagcctgatt ccgtggatcg acaaacagct cgataacggt cagagccgcg
                                                                         960
62 aagagtggaa agggcaggcg gaaaccaaca agatcctcaa cacatcttcc gtaattccgg
                                                                        1020
64 tagatggttt atgtgtgcgt gtcggggcat tgcgctgcca cagccaggca ttcactatta
                                                                        1080
66 aattgaaaaa agatgtgtet atteegaeeg tggaagaaet getggetgeg eacaateegt
                                                                        1140
68 gggcgaaagt cgttccgaac gatcgggaaa tcactatgcg tgagctaacc ccagctgccg
                                                                        1200
                                                                        1260
70 ttaccggcac gctgaccacg ccggtaggcc gcctgcgtaa gctgaatatg ggaccagagt
72 teetgteage etttaeegtg ggegaeeage tgetgtgggg ggeegeggag eegetgegte
74 ggatgetteg teaactggeg taatetttat teattaaate tggggegega tgeegeeet
                                                                        1380
76 gttagtgcgt aatacaggag taagcgcaga tgtttcatga tttaccggga gttaaataga
                                                                        1440
78 gcattggcta ttctttaagg gtggctgaat acatgagtat tcacagcctt acctgaagtg
                                                                        1500
80 aggacgacgc agagaggatg cacagagtgc tgcgccgttc aggtcaaaaa aatgtcacaa
                                                                        1560
82 ccagaagtca aaaatccaat tggatggggt gacacaataa aacaggaaga caagcatgtc
                                                                        1620
84 cgatcgtatc gatagagacg tgattaacgc gctaattgca ggccattttg cgga
                                                                        1674
```

87 <210> SEQ ID NO: 2

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/512,810

DATE: 01/07/2002 TIME: 12:38:30

Input Set : A:\09-512810 Seq Listing.txt
Output Set: N:\CRF3\01072002\I512810.raw

```
88 <211> LENGTH: 1121
     89 <212> TYPE: DNA
     90 <213> ORGANISM: Shigella sp.
     92 <220> FEATURE:
     93 <221> NAME/KEY: misc_feature
     94 <222> LOCATION: (439)..(991)
     95 <223> OTHER INFORMATION: The E.coli asd gene coding for b-aspartic semialdehyde
dehydrogen
     96
              ase identified in Seq. ID No. 1 was modified by deleting 553 base
     97
              pairs from position 439 to 991.
     100 <400> SEQUENCE: 2
     101 tocataatca ggatcaataa aactgotgoa gaaatgattt cattcataac toaaattooc
                                                                                60
     103 tqataattqc cqcqqacttt ctqcqtqcta acaaaqcaqq ataaqtcqca ttactcatqq
                                                                               120
     105 cttcgctatc attgattaat ttcacttgcg actttggctg ctttttgtat ggtgaaagat
                                                                               180
     107 gtgccaagag gagaccggca catttataca gcacacatct ttgcaggaaa aaaacgctta
                                                                               240
     109 tgaaaaatgt tggttttatc ggctggcgcg gtatggtcgg ctccgttctc atgcaacgca
                                                                               300
     111 tggttgaaga gcgcgacttc gacgccattc gccctgtctt cttttctact tctcagcttg
                                                                               360
     113 gccaggctgc gccgtctttt ggcggaacca ctggcacact tcaggatgcc tttgatctgg
                                                                               420
     115 aggcgctaaa ggccctcgga tcctcaacac atcttccgta attccggtag atggtttatg
                                                                               480
     117 tgtgcgtgtc ggggcattgc gctgccacag ccaggcattc actattaaat tgaaaaaaga
                                                                               540
     119 tgtgtctatt ccgaccgtgg aagaactgct ggctgcgcac aatccgtggg cgaaagtcgt
                                                                               600
     121 tecgaaegat egggaaatea etatgegtga getaaeecea getgeegtta eeggeaeget
                                                                               660
     123 gaccacgccg gtaggccgcc tgcgtaagct gaatatggga ccagagttcc tgtcagcctt
                                                                               720
     125 taccgtgggc gaccagctgc tgtggggggc cgcggagccg ctgcgtcgga tgcttcgtca
                                                                               780
                                                                               840
     127 actggcgtaa tetttattea ttaaatetgg ggcgcgatge egeceetgtt agtgcgtaat
     129 acaqqaqtaa qcqcaqatqt ttcatqattt accqqqaqtt aaataqaqca ttqqctattc
                                                                               900
     131 tttaagggtg gctgaataca tgagtattca cagccttacc tgaagtgagg acgacgcaga
                                                                               960
     133 gaggatgcac agagtgctgc gccgttcagg tcaaaaaaat gtcacaacca gaagtcaaaa
                                                                              1020
     135 atccaattqq atqqqqtqac acaataaaac aqqaaqacaa qcatqtccqa tcqtatcqat
                                                                              1080
     137 agagacgtga ttaacgcgct aattgcaggc cattttgcgg a
                                                                              1121
                                                                                      Sec. 3.
     140 <210> SEQ ID NO: 3
     141 <211> LENGTH: 22
     142 <212> TYPE: DNA
     143 <213> ORGANISM: Shigella sp.
     145 <400> SEQUENCE: 3
                                                                                22
     146 agatetecet gataattgee ge
     149 <210> SEQ ID NO: 4
     150 <211> LENGTH: 26
     151 <212> TYPE: DNA
    152 <213> ORGANISM: Shigella sp.
     154 <400> SEQUENCE: 4
    155 agateteget tacteetgta ttacge
    158 <210> SEQ ID NO: 5
    159 <211> LENGTH: 20
    160 <212> TYPE: DNA
    161 <213> ORGANISM: Shigella sp.
    163 <400> SEQUENCE: 5
    164 cgagggcctt tagcgcctcc
                                                                                20
    167 <210> SEO ID NO: 6
    168 <211> LENGTH: 20
```

RAW SEQUENCE LISTING

DATE: 01/07/2002 PATENT APPLICATION: US/09/512,810 TIME: 12:38:30

Input Set : A:\09-512810 Seq Listing.txt
Output Set: N:\CRF3\01072002\I512810.raw

169	<212> TYPE: DNA	
170	<213> ORGANISM: Shigella sp.	
172	<400> SEQUENCE: 6	
173	gatcctcaac acatcttccg	20
176	<210> SEQ ID NO: 7	
177	<211> LENGTH: 22	
178	<212> TYPE: DNA	
179	<213> ORGANISM: Shigella sp.	
181	<400> SEQUENCE: 7	
182	gagctcccct gataattgcc gc	22
185	<210> SEQ ID NO: 8	
1.86	<211> LENGTH: 26	
187	<212> TYPE: DNA	
188	<213> ORGANISM: Shigella sp.	
190	<400> SEQUENCE: 8	
191	gtcgaccgct tactcctgta ttacgc	26

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/512,810

DATE: 01/07/2002

TIME: 12:38:31

Input Set : A:\09-512810 Seq Listing.txt
Output Set: N:\CRF3\01072002\I512810.raw